School Shop

vol. V no. 5

January, 1946

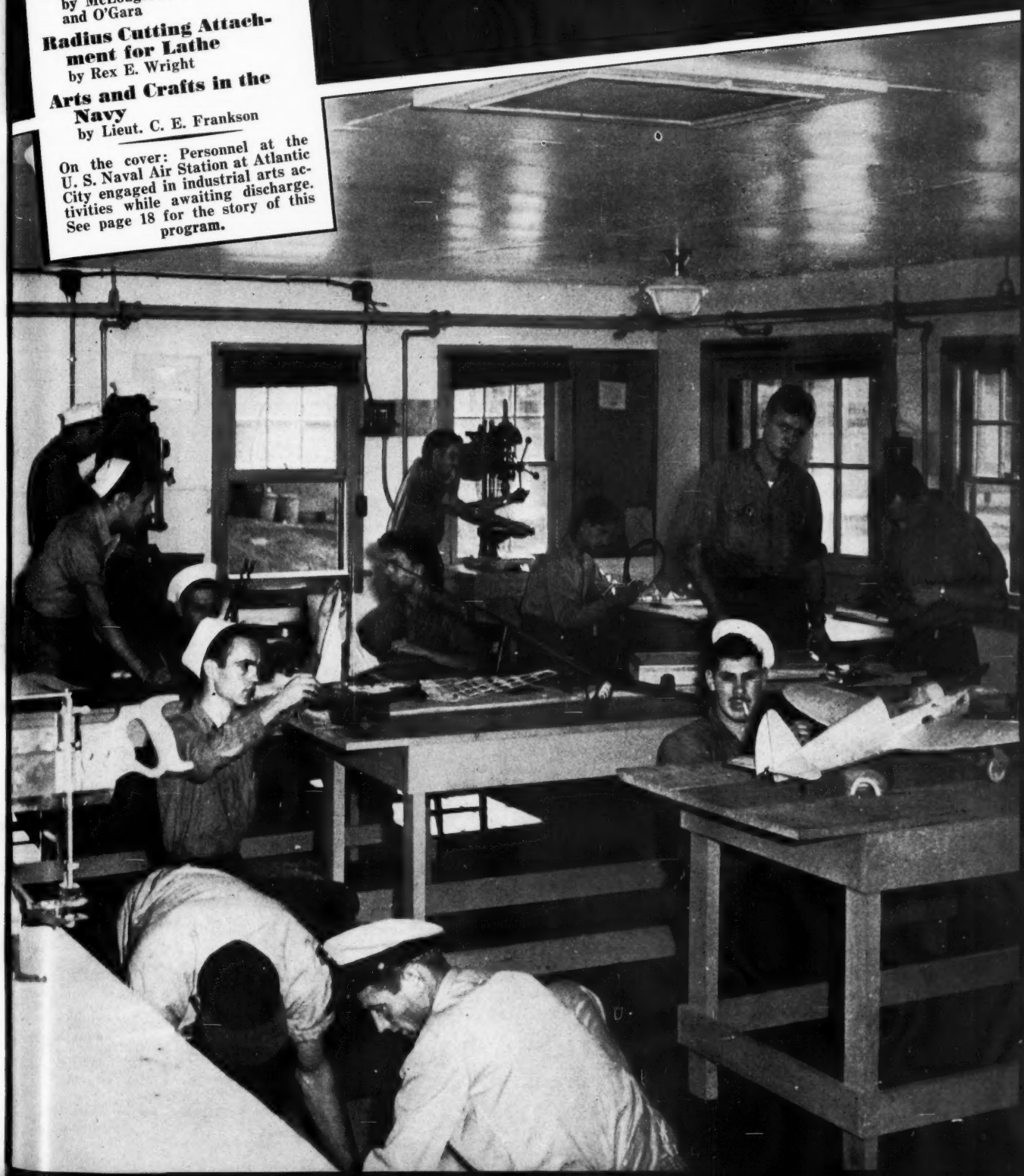
Is It Good Policy?
by Tom Diamond

Case Clock
by McLoughlin, Gregory, and O'Gara

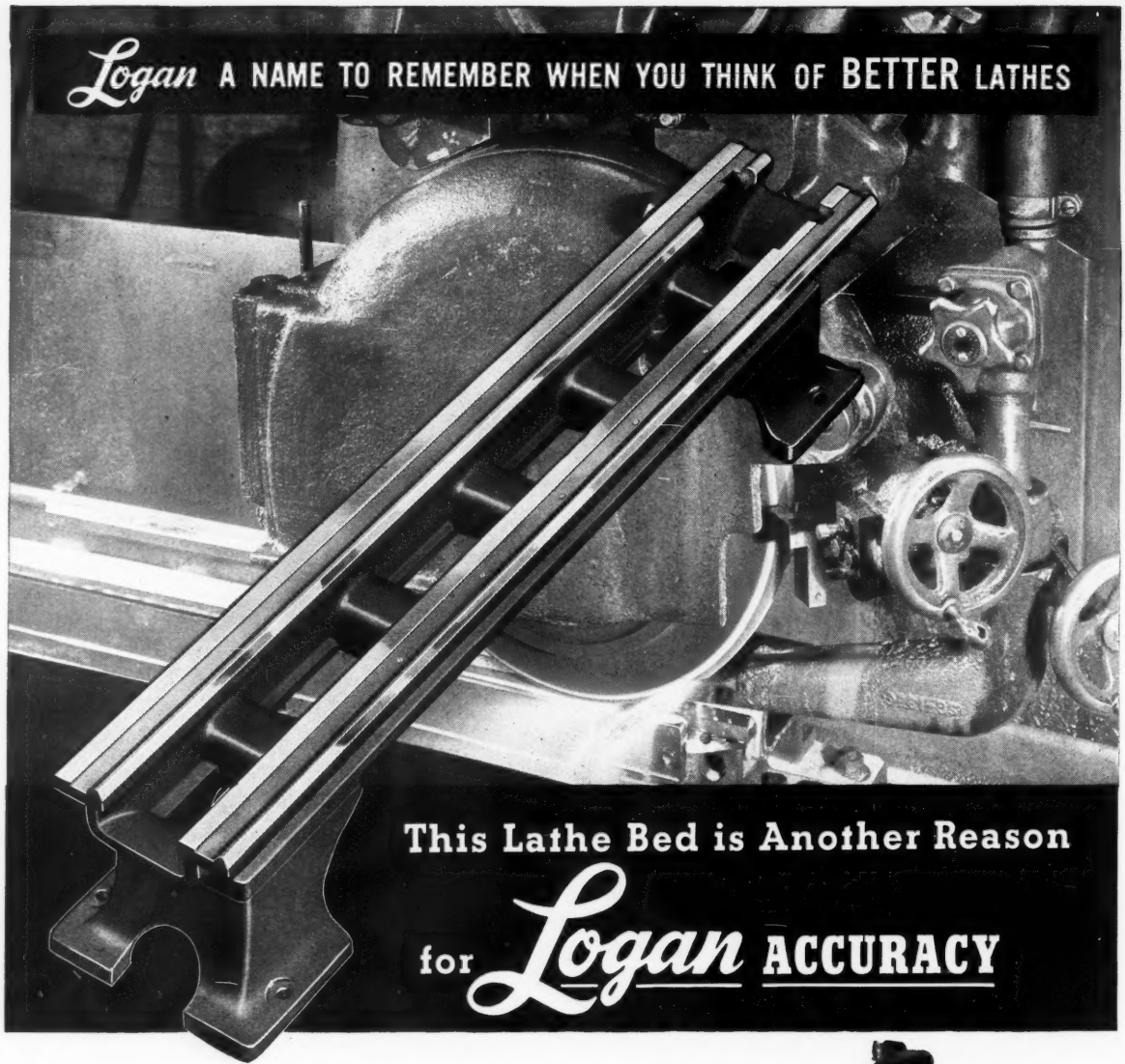
Radius Cutting Attachment for Lathe
by Rex E. Wright

Arts and Crafts in the Navy
by Lieut. C. E. Frankson

On the cover: Personnel at the U. S. Naval Air Station at Atlantic City engaged in industrial arts activities while awaiting discharge. See page 18 for the story of this program.



Logan A NAME TO REMEMBER WHEN YOU THINK OF **BETTER** LATHES



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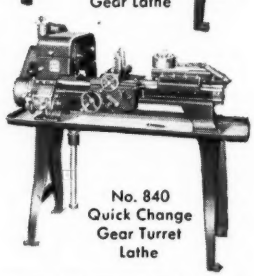

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Gear Turret
Lathe

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School Shop

FOR INDUSTRIAL EDUCATION TEACHERS

January, 1946
Vol. V, No. 5

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School Shop is published monthly, September through June, at Ann Arbor, Michigan. Manuscripts are paid for at regular space rates and should be addressed to the Editor, School Shop, 330 South State Street, Ann Arbor, Michigan. Subscription rates to libraries and institutions, $2.00 a year; foreign and Canadian, $3.00 a year. 25 cents a copy. Printed in the U.S.A.

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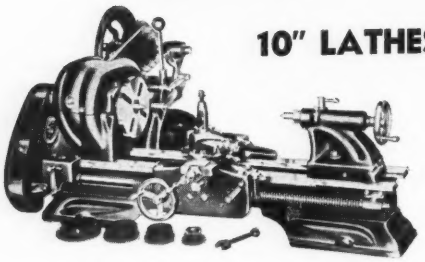

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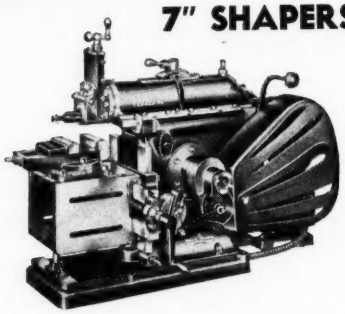
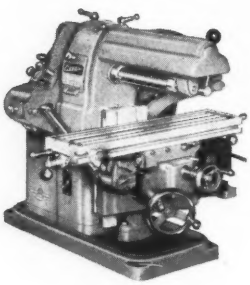


MILLING MACHINES



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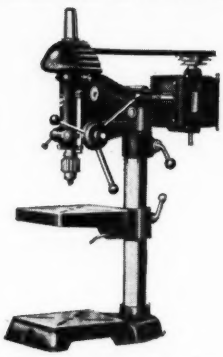

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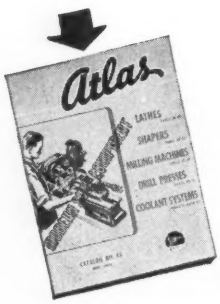

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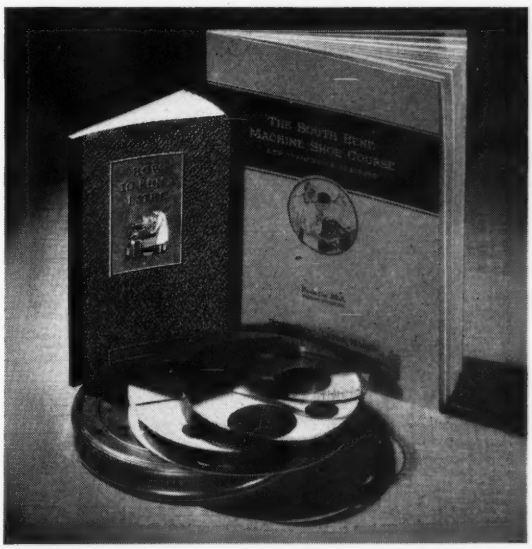

Used as teaching and study aids, this material will simplify teaching and help you to train better lathe operators. Sample copies of booklets will be mailed without charge on request from any school shop instructor or supervisor.

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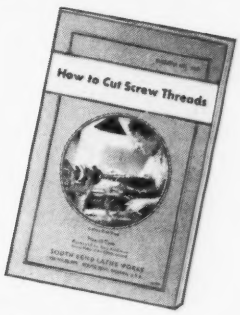
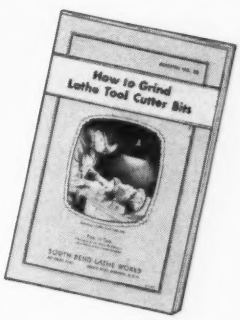


"HOW TO CUT SCREW THREADS"

Gives step-by-step instructions for cutting screw threads in the lathe. Contains 24 pages, 82 illustrations.



"HOW TO GRIND CUTTER BITS"

A useful, highly informative book which explains and illustrates in detail how to grind and sharpen lathe tool cutter bits. Contains 16 pages, 51 illustrations. Size 6"x 9".

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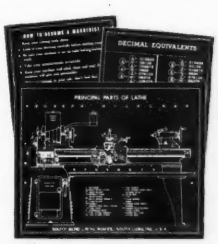
Each booklet deals with one phase of lathe care essential for satisfactory lathe performance. Booklets will be supplied in reasonable quantities without charge to school shop supervisors and instructors.

BULLETIN H-1—"KEEP YOUR LATHE CLEAN"—tells how, why, and with what to clean the vital parts of the lathe. Contains 16 pages, 19 illustrations. Size 6"x9".

BULLETIN H-2—"OILING THE LATHE"—explains where, how, and with what oil to lubricate the lathe. Size 6"x 9", 16 pages, 19 illustrations.

BULLETIN H-3—"THE INSTALLATION AND LEVELING OF THE LATHE"—gives instructions for installing and leveling the lathe correctly. Contains 20 pages, 20 illustrations. Size 6"x 9".

BULLETIN H-4—"KEEP YOUR LATHE IN TRIM"—gives instructions for making necessary adjustments, checking power supply, and keeping the lathe in best operating condition. Contains 32 pages, 39 illustrations. Size 6"x 9".



BLUE PRINT WALL CHARTS

Large simulated blueprints, suitable for framing, show the parts of the lathe, decimal equivalents of fractions up to 1-inch, and 17 "Pointers" on "How To Become A Machinist." Sample copies free on request.

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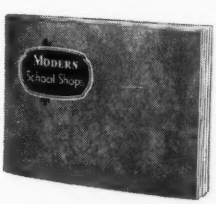

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ON SUBJECTS YOUR STUDENTS WILL ASK YOU ABOUT

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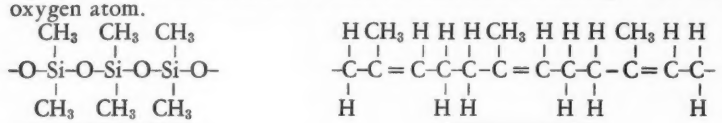
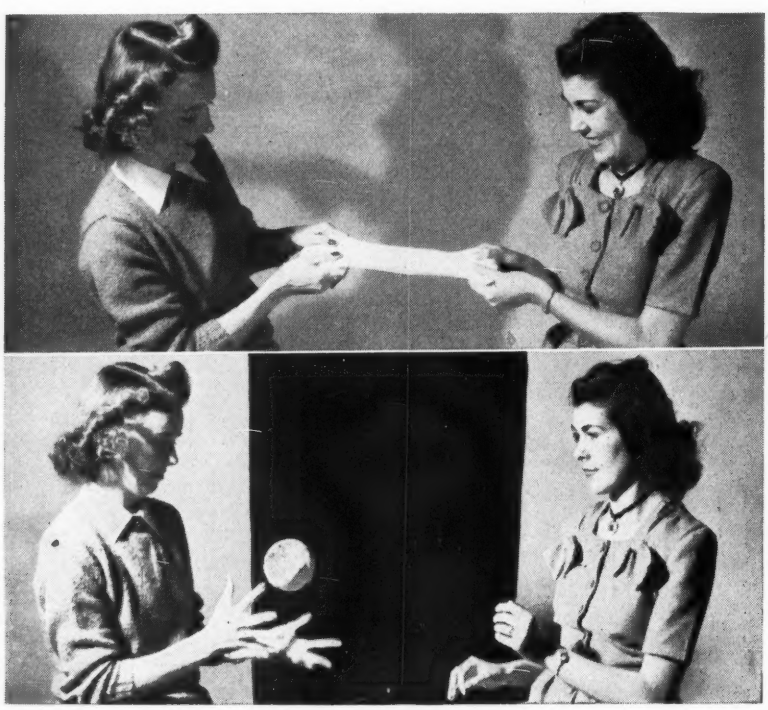
SILICONE RUBBER, new product of the G.E. Research Laboratory, retains its elastic properties at temperatures from minus 60 to 575 degrees F. A silicone rubber gasket, after operating continuously at 300 degrees F. for 300 hours in a turbosupercharger, like the one on the right, is still so soft that it can be used again. Turbosuperchargers get hot in the corrosive blast of the engine's exhaust, and operate in the bitter cold substratosphere. That's why the gasket must be made to withstand heat and cold. The use of rubber is limited because at low temperatures it is brittle and smashes like glass, while at high temperatures it melts or burns. But the new silicone rubber will take violent jolts and even though it may get very hot, or cold, will not lose its elasticity.

SILICON-OXYGEN BACKBONE. Closely related to carbon, silicon is present in sand and glass, which are highly resistant to heat. Both elements can form long chain-like molecules called polymers. Organic polymers, such as natural and synthetic rubber, have as a backbone a string of carbon atoms. Silicone is also a polymer, but its backbone is a series of units each consisting of a silicon and oxygen atom.



SILICONE POLYMER **CARBON POLYMER**

This replacement of the carbon backbone with silicon-oxygen linkages is responsible in most instances for improved thermal stability.



RESEARCH IN SILICONE rubber continues. Before the war, work was already being done in this field. War needs hastened the commercial development of silicones. They take the forms of a plastic as soft as putty which will bounce as high as rubber; an electrical insulating compound that will operate continously without charring at high temperatures; oils with almost unchanging viscosity which remain liquid and non-volatile as temperature changes; and vapors which make fabrics and ceramics water-repellent.

In its present state of development, silicone rubber is not suitable for uses that require high tensile strength. In this respect, its growing pains are not unlike those of synthetic organic rubber. But the research in silicone rubber is by no means over. "Silicone chemistry," so parallel to "carbon chemistry," has possibilities which stagger the imagination.

●

This advertisement is one of a series, designed as a service to teachers of question-asking boys and girls. *General Electric Co., Schenectady, New York.*

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Is It GOOD POLICY?

BY *Tom Diamond*

Getting along with people is a fine art, the mastery of which contributes to more effective teaching and administration. Tom Diamond is head of the Department of Vocational Education, University of Michigan, Ann Arbor.

MUCH of the work of the director of industrial education involves personal contact with people. Certain responsibilities necessitate working with teachers, others call for conferences with other administrators and supervisory officers in the school system, and still others call for making contact with individuals and organizations outside of the school.

Pleasant personal contacts enable the director to do a more effective job. The attitude of fellow workers toward the director is conditioned by a number of things. Some of them the director can do nothing about, but others can be controlled by the director's actions. The good administrator takes cognizance of the many little actions he performs which add up to create an impression in the minds of those with whom he works.

Following is a discussion of some practices which may help to make smooth the path of the director of vocational or industrial education.

1. When the director visits a school it is courteous, and it is always good policy, to call on the principal before visiting the teachers. Even though the principal is not in his office when the director calls he will learn when he returns that the director made an effort to call on him. It makes for better relations if the director keeps the principal informed concerning the purpose of his visits. Some directors follow the practice of hanging their hats and coats in the principal's office as they enter the building.

2. It is good policy to discuss with the principal any changes contemplated in school shops.

3. The director should see to it that the principal has a course of study covering each shop activity. If this is done, the principal will be in a position to talk intelligently about that class operation. This is likely to assure his cooperation in any proposal made by the director.

4. If there is a department head in charge of any activity, the director should not fail to recognize him when orders have to be issued. He should be consulted on any matters pertaining to the work or the teachers under his direction. The desirability of this becomes apparent to the director when he considers the possibility of the superintendent ignoring the director and taking up matters pertaining to the department directly with the teacher.

5. It is always good policy to assume the attitude that your predecessor knew his business. It pays to postpone judgment on what you find in a department you are just entering until you have had an opportunity to study the reasons for conditions being as they are. Things you consider objectionable may have been beyond his control, and they may be beyond yours.

If you find that changes must be made they should be made slowly. The director who can change procedures in his department without disturbing the personnel, or making them conscious that a revolution is going on, is likely to be successful. Changes made as a result of convincing the teachers will cause less disturbance than if they are made by edict. Frequently changes may come as the result of teacher suggestions.

6. Always assume that the shop teacher knows his special field better than you do. This may not be literally true but it is always good policy to give the other chap credit for knowing his job as well as you think you know your own.

7. It is good policy to do business in writing. While this is not always possible the director should carry it as far as conditions permit. Superintendents, principals, and even directors are forgetful. In view of this the following suggestions seem worthy of consideration: (*a*) Send your suggestions to the superintendent or principal *in writing*. (*b*) Confirm your conversation concerning departmental matters in writing. When you discuss a departmental problem with another school official it is always possible for each of you to interpret the conversation differently. When you state your point of view *in writing* it gives the other person an opportunity to take any action necessary to harmonize his thinking with yours. (*c*) Orders, changes, policies should all be sent to the teachers *in writing*. (*d*) When changes have to be made involving the safety of pupils—even though you have suggested these changes orally—always follow up with a formal request *in writing*. Your carbon copy may be a means of saving you embarrassment should an accident occur.

8. It is good policy to attend professional conventions: (*a*) You get to know people and be known. (*b*) You have an opportunity to exchange ideas with others in your field. (*c*) You have an opportunity to broaden your point of view through hearing what people in other fields are doing. (*d*) All of these tend to raise your professional standing.

9. It is good policy to write for your professional magazines. The same reasons might apply here as in No. 8 above. In addition, one should consider the satisfaction that results from having expressed your ideas in writing so that other people may share them. In this connection a person should not be deterred from this activity merely because he finds difficulty in writing. What magazine editors want are ideas. If these ideas are expressed well, so much the better. However, if they get an idea, however poorly expressed, they will soon make it acceptable from a literary point of view.

10. It is good policy to leave your personal feelings outside of the school. You may dislike a fellow-worker most heartily, personally, but it is a mistake to permit this to hinder cooperative action within the school organization. If you must hate him, do it outside.

11. It is good policy to visit other schools and departments as often as it is convenient. Every teacher has something that is worthwhile and worth observing. When you find an idea that is good, do not hesitate to copy it. After all, there is little real originality in the world. Use the good that you find—wherever you find it—and take heed that you avoid the things that are bad.

12. It is good policy to be neat in your appearance and to be dressed appropriately for your work. The director is dealing with people and people are influenced by appearance. This may be the deciding factor in influencing the reaction of those with whom you come in contact. It pays to spend ten minutes each day in shaving. Even at ten cents, a shoe shine is a good investment. These

(Continued on page 9)

Case Clock

BY *E. McLoughlin, G. Gregory,* AND *E. O'Gara*

As a final project for the advanced woodworking student, this clock incorporates most of the skills and processes the student has learned in the course and serves as an incentive for him to demonstrate his knowledge. The authors are teachers in the Chapman Technical High School, New London, Conn.

TESTED INSTRUCTIONAL PROJECT

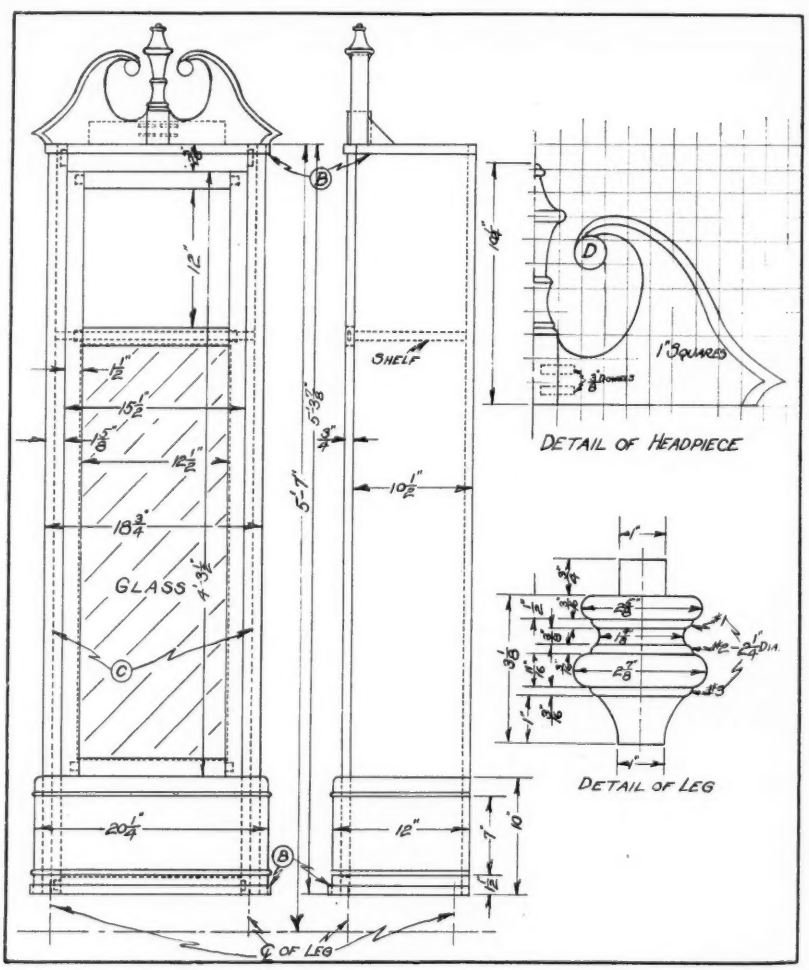
THROUGHOUT the years spent in a course in woodworking there is need for an ultimate objective which will serve as a goal for the best advanced students, an objective which will also synthesize all the processes and experiences of the pupils throughout their years of shop work. The case clock serves as such an objective.

The clock pictured here was planned and executed by an advanced woodworking student who had the following points in mind: (1) originality of design; (2) beauty in structure; (3) application of all of the functions of the woodworking course.

The plans as presented are basic. The student may use his originality by applying variations to the basic plan in an attempt to arrive at beauty in structure, while he is using all of the functions of the woodworking course.

Assuming that the student who decides on this project is one with three years of woodworking completed, he will follow the general pattern of work as suggested below.

1. Make practice sketches, working in a variety of original designs for trial.
2. Make mechanical drawing of final sketch.
3. Make blueprint of final drawing.
4. Make bill of materials.
5. Have plans and bill of materials approved by department head.
6. Cut and square to size the two side pieces which run from top to bottom.
7. Cut and square to size the top and bottom. Fit both top and bottom into side pieces with a rabbet joint cut on the ends of side pieces.
8. Cut a $\frac{1}{4}$" by $\frac{3}{8}$" rabbet joint on sides, top, and bottom for the back. Glue and nail together. At this stage you will have a box 5' $3\frac{7}{8}$" long, $10\frac{1}{2}$" deep, and $18\frac{3}{4}$" wide.
9. Cut two sides and bottom for door frame out of $\frac{3}{4}$" x $1\frac{5}{8}$" (finish size) stock. Cut top of door frame from piece $2\frac{3}{8}$" wide to allow for top moulding at a later stage.
10. Put frame together with dowels or mortise-and-tenon joint. Nail and glue the frame to the face of case.
11. The base pieces are mitred at the two front corners. They are then glued and nailed into position at the bottom of the case.
12. The four feet may be turned at this time. A hole 1" in diameter and $1\frac{5}{8}$" in from the front and sides should be bored in the base and the feet glued on.
13. The pediment is planed first and then turned. The scrolls can be made by laying out the shape according to the 1" squares on the drawing. They can then be cut on the band saw. The moulding that is placed on the scrolls can be made by tracing the outline of the scrolls on



BILL OF MATERIALS

Description	No. of Pieces	Size
Side pieces	2	¾"x10½"x5'3⅞"
Bottom and top	2	¾"x9¾"x17¼"
Back	1	¾"x18"x5'3⅞"
Door jam—sides	2	¾"x1⅝"x5'3⅞"
Door jam—top	1	¾"x2⅜"x17"
Door jam—bottom	1	¾"x1⅝"x17"
Built-out base—front	1	¾"x10"x20¼"
Built-out base—sides	2	¾"x10"x12"
Pediment	1	2"x2"x10¼"
Scrolls	2	¾"x8"x10"
Door sides	2	¾"x1½"x4'3½"
Door top, bottom, and middle	3	¾"x1½"x14"
Shelf	1	¾"x9¾"x17¼"
Feet	4	2⅞"x2⅞"x3⅞"
Glass	1	13"x35¼"
Hinges	3	1½"x2"

Mouldings for front face, top, and bottom may be subject to the individual's taste.

Design for legs and pediment may also be altered to suit.

Material—mahogany.

a separate piece of wood and cutting on the band saw. This edge may then be cut with a router for the moulding shape and the width of the moulding cut on the band saw. The moulding is then glued to the scrolls.

14. The scrolls are attached to the pediment by placing two dowels in each scroll. The whole top piece can be secured to the clock case by means of a block cut on a 45° angle and screwed and glued into position.

15. The split turnings for the top and bottom of the rope moulding on the front of the case can be made by glueing two pieces of wood together with a heavy piece of paper between them. After glue has set (overnight), the pieces can then be turned on a lathe. When completed, they can be split with a sharp chisel which will cut the paper in two. The paper must be removed before placing the turnings on the clock. They are secured in place with glue and brads.

16. The rope moulding on the front is a machine-cut moulding which may be bought at several well-known supply houses and is simply fitted between top and bottom turnings and secured with glue and brads.

17. The top and bottom mouldings, along with the half-round moulding on the base, should be mitred at the corners and secured with glue and brads.

18. The door should now be made and fitted into the opening, making sure that the cross member of the door is placed in such a manner that a square 12½" by 12½" constitutes the opening for the face of the clock. The door may be made with mitred or mortise-and-tenon joints, as preferred. Make sure a rabbet is cut on the back of the door for insertion of the glass. A shelf is then placed back of the cross member of the door on which to place the clock works. Three-pin butt hinges and a door latch should then be fitted into place.

19. The works may be obtained from a reputable clock manufacturer and their instructions for installation followed very carefully.

20. The whole case should be sanded with No. 1 and No. 1/0 to 3/0 sandpaper and then stained, shellacked, and varnished. The whole should be rubbed to a fine finish with pumice and oil and, finally, waxed.

Policy *from page 7*

seem small matters but they may loom up big when the opinion of people will influence the work of a director.

13. Smoking is not frowned upon by society in general. However, there are those to whom the odor of tobacco is objectionable. If the director smokes, it is good policy to do so away from the school. He should be particularly careful to avoid carrying the odor into the school. There is no suggestion here of underhandedness, it is just of good taste. One does not wear his hat in church, nor does he wear his overshoes in the parlor. He refrains from certain practices, not because they are wrong, but merely because they are not appropriate in certain situations.

14. What has been said about tobacco may be said about the consumption of liquor. There is nothing in the rule book which prevents a director from drinking beer. However, it is good policy for a director to use discretion and good judgment in this area.

15. The director should be an example to his teachers as well as the pupils. Because of this it is good policy for him to attend church. One need not be hypocritical about this, but particularly in smaller cities people tend to have greater respect for the man who attends church.

16. The director who has the reputation of not paying his bills is likely to lack the respect of his community. A good citizen meets his responsibilities. Therefore, it is good policy for the director to pay his bills when due. If he fails in this, he is classed as a "dead-beat" and loses the respect he must have if he is to be effective in his work.

17. It is good policy for the director to use good English. It is true he may be dealing with shop activities, but this does not justify using some types of shop language. He is dealing with supervisory and administrative officers in the school system and they tend to judge his work by the manner in which he expresses himself. Furthermore, there are others in the school system who are attempting to teach English and they have a right to expect cooperation from other school officials.

18. It is good policy for the director to keep himself up-to-date on matters pertaining to his field. If he is to lead his teachers he must be familiar with the latest procedures, methods, or ideas in his field. To the extent that he knows, to that extent can he depend upon the respect of his teachers.

19. The director is in a position where he must meet people in other fields of education. If he is to win and keep their respect, he must inform himself about some of the outstanding features of their work. It is not essential that he know these fields intimately. It is desirable, however, that he be able to converse with them intelligently about their special fields. It is also good policy to be able to talk intelligently about recent happenings in other fields of education.

20. Not only is it a good policy, but it should be an absolute rule, that the director be loyal to his supervisors. There are so many ways in which disloyalty may manifest itself that the director must weigh each act and each statement he makes in the light of the interpretation others may place on it. He owes to the administration the same loyalty that he has a right to expect from his teachers.

Minimum Safety Guards

All circular saws must be equipped with both an adequate overhead guard and a splitter guard.

Jointers must have both front and rear guards.

Both top and bottom wheels on band saws must be fully enclosed and there must be an additional guard at the point of operation.

All grinder wheels must be fully enclosed (excepting about 75° at point being used) and each wheel must have an illuminated eye shield over it.

All belts, gears, and pinch points must be fully enclosed.

Nonslip floor covering should be installed on the working space in front of jointers, saws, etc.

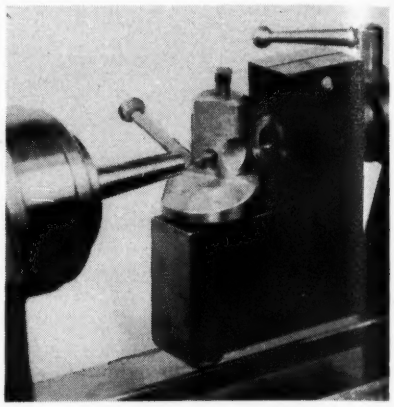
All squaring shears must be guarded so that it is impossible to get fingers between knives.

—DeWitt Hunt in *School Shop Safety*, a publication of the National Safety Council.

Radius Cutting Attachment for Lathe

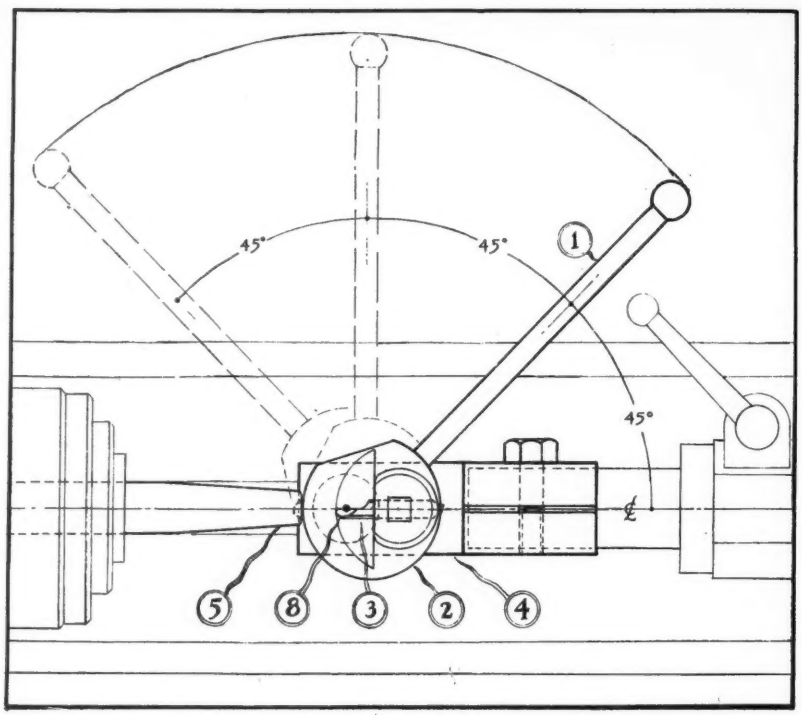
BY *Rex E. Wright*

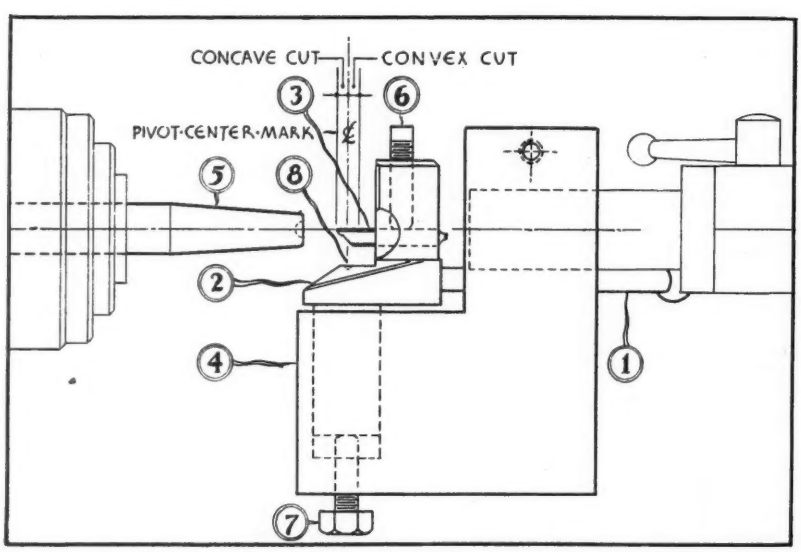
By use of this device it was possible for the machine shop at the Pennsylvania State School of Aeronautics to keep a large supply of radius-faced tools, especially rivet sets, on hand and to produce items requiring face turning of exact radii. Rex. E. Wright is Adviser, Motor Transport Training, Pennsylvania State Department of Public Instruction.



THE production problem of turning the concave face or cup on aircraft rivet sets is simplified by a lathe attachment developed by Mr. Ray Dewalt, Senior Instructor of Machine Shop Practice at the Pennsylvania State School of Aeronautics.

The device can be adjusted to produce the exact radius required for any size rivet head. The cup of the rivet set can be formed quickly and accurately by a vocational student with a minimum of training.





The attachment is also adjustable so that a convex face such as the ball of a machinist hammer can be produced with equal facility. The tool is fed into the stock by use of the tail-stock screw.

The presence of this device in the school machine shop will provide a means for fabricating a complete stock of well-formed rivet sets for each student's tool kit or any other item where it is necessary to cut a radius.

The design and manufacture of the device adaptable to any machine lathe creates a problem-solving activity (a recognized learning activity). The accompanying photograph and drawings give the general design and principle of operation. Dimensions and details in design to conform to any particular lathe can be worked out by the intermediate machine-shop student in his related drawing class.

The following details might aid in clarifying the use of the attachment:

Insert *rivet set* (5) head into collet of head stock.

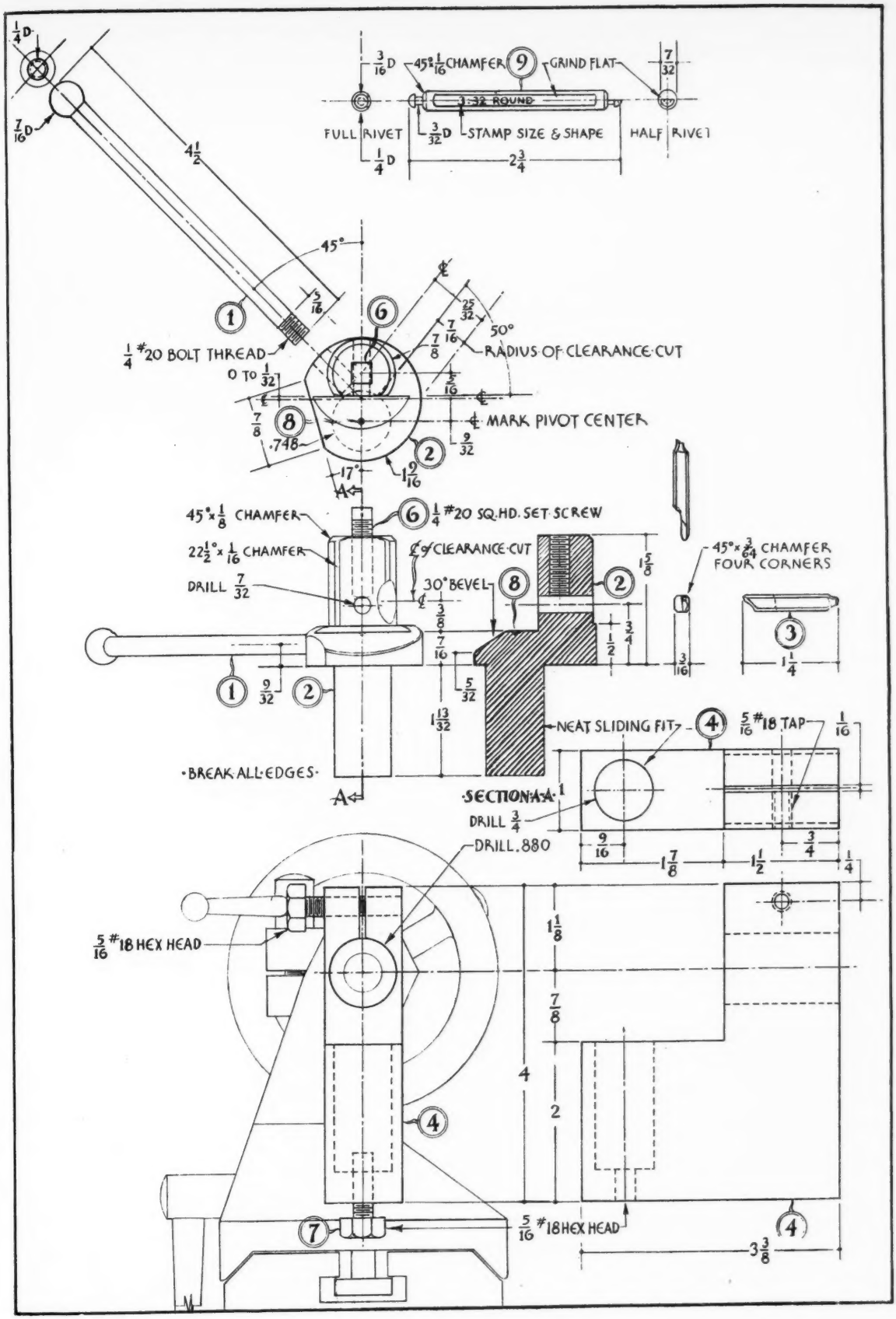
Clamp *tool-post holder* (4) to tail-stock spindle by tightening hex head bolt. Insert *tool post* (2) into ¾ socket in *tool-post holder* (4); pivoting on *elevation adjustment screw* (7). Set *bit* (3) into *tool post* (4) and hold by *bit clamp screw* (6).

For *concave cut* point should be

(Continued on page 16)

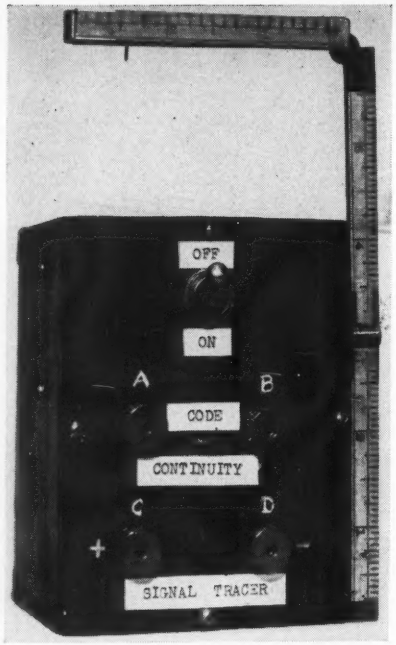
Legend for Drawings

1. Operating handle.
2. Tool post.
3. Bit.
4. Tool-post Holder.
5. Rivet set.
6. Bit clamp screw.
7. Elevation adjustment screw.
8. Pivot center mark.
9. Gage.


FULL RIVET
STAMP SIZE & SHAPE
HALF RIVET
GRIND FLAT
CHAMFER
ROUND
RADIUS OF CLEARANCE CUT
MARK PIVOT CENTER
BREAK ALL EDGES
NEAT SLIDING FIT
SECTION A-A
DRILL .880
HEX HEAD
HEX HEAD

Combination Radio Unit

BY *Francis J. Gorgos*



The folding rule shows the comparative size of the unit. View shows full top view and a partial side view. Photo by Van Duzer.

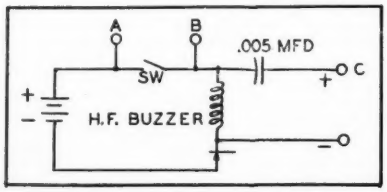


Figure 1

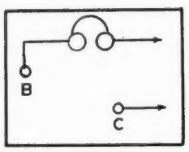


Figure 2

This compact little unit is an excellent radio project and can be used for a variety of instructional purposes, although it has some operating limitations. Francis J. Gorgos teaches at the Central High School, Binghamton, New York.

TESTED INSTRUCTIONAL PROJECT

BY using a high-frequency buzzer in a simple circuit, an inexpensive code practice set, signal tracer, and continuity tester can be made in a few hours' time. This compact little unit is contained in a case measuring 4½" x 2½" x 2½" and can be made even smaller if desired. The beginner in radio and even the more advanced radio enthusiast who has no access to modern test equipment will find this unit an effective tester for certain types of radio trouble shooting.

As a code practice set for sending and receiving, this unit produces a sharp, high-pitched tone which can be heard with or without earphones or in a broadcast receiver. The operator can vary the pitch of the signal by adjusting the tension on the vibrator of the buzzer. For code practice without earphones, insert sending key leads into jacks *A* and *B*, and leave switch (*sw*) at "off." At this point earphone reception may be had by merely plugging the phone tips into jacks *C* and *D*. Loud signals suitable for classroom code instruction can be easily provided by inserting the sending key leads into jacks *A* and *B* and connecting jacks *C* and *B* to the aerial and ground posts on the broadcast receiver. Leave switch (*sw*) at "off."

Locating radio troubles by signal tracing saves a great deal of time and effort. Two methods of simple signal tracing are available with this unit. The first method employs the high-frequency buzzer circuit as a signal generator to produce a suitable signal for signal tracing through a receiver or amplifier. Insert test leads into jacks *C* and *D* and turn switch (*sw*) to "on" position. The receiver or amplifier to be tested should be operating. Introduce the signal to the output end of the receiver or amplifier by placing the test leads across the final output leads. If this stage is ok, you will hear the signal in the speaker clearly. Now follow back to the input of the receiver stage by stage, introducing the signal to each tube (plate to common ground, grid to common ground), across coupling transformers, and to coupling condensers until the stage is reached where the signal fails or is not normal. Test each part of that stage until the source of trouble is located.

The second method of signal tracing uses a condenser in series with one lead of the headphones and is excellent for locating troubles in the audio amplifier end of receivers. (Refer to Fig. 2.) The set to be tested should be operating. Insert one lead of headphones into jack *B* and insert a test lead into jack *C*. Place the free end of the headphone on the common ground of the set being tested and explore with the prod of the test lead, starting at the input side of the audio section and proceeding to the speaker. Switch (*sw*) should be at the "off" position. To test the input end of a tube, for example, place test leads across cathode and grid, listening to the quality of the signal in the earphones. To test the output end of a tube, place test leads on cathode and plate. Diminished signal strength, distortion, or noise in a stage being tested indicate trouble. Check each component of that stage until the point of disturbance is located. Poor reception (distortion, etc.) caused by a defective speaker can be quickly diagnosed by placing the test prods across the final output end of the speaker. If the signal as heard in the headphones is satisfactory, it can be assumed that poor reception is being caused by a defective speaker.

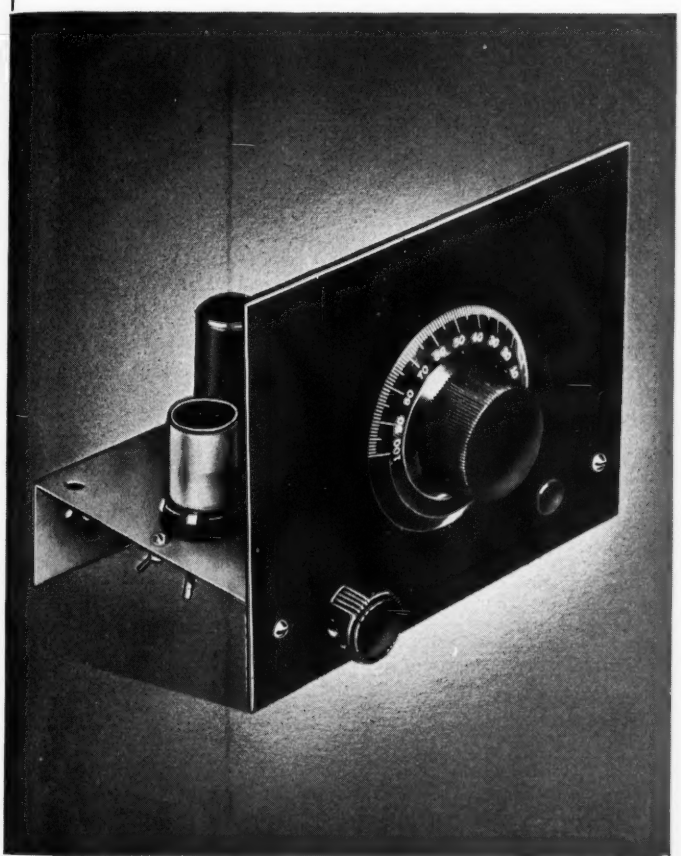
This unit can also be used as a simple continuity checker to trace wiring, and to test for shorts and opens in coils, leads, very low resistances, etc. Tubes up through the 12-volt type can be checked for burned-out filaments or heaters. Insert test prods into jacks *A* and *B*. Leave switch (*sw*) at "off." An audible buzz indicates a short or a closed circuit, providing the resistance of the circuit is not too great.

A wooden box, 4½" x 2½" x 2½", was used to house the unit. The switch and jacks are mounted on a panel of ⅛" masonite which is fastened to the box with four small wood screws. A hole was drilled in one side of the box so that the tension on the high-frequency buzzer can be varied readily with a screw driver. If a metal case is used, care must be taken to properly insulate the parts mounted on the metal panel. A metal case would probably prove more desirable because its shielding effect would tend to confine the signal within the circuit being tested when the unit was used as a signal generator. Shielded test prods also help to reduce unwanted radiation.

The value of the condenser in the circuit is not critical. Larger or smaller capacities can be substituted until the desired signal strength is obtained.

The parts required are a high-frequency buzzer; 4 tip jacks; 2 flashlight batteries; a .005 mfd. paper condenser (600 volt); and a single-pole single-throw toggle switch.

THIS MEISSNER STUDENT KIT
helps you teach radio at low cost



Here is a real teaching help that will give you the chance to add *practical* radio to your science or shop program. This Meissner Student Kit, accepted by the Signal Corps and Navy for primary radio instruction, makes it possible for your students to actually work with the theories they learn in the classroom.

The Meissner Student Kit is a completely engineered, tested 1-tube set shipped disassembled. All directions for assembly are written in clear, simple language that can be understood by a 12-year-old. There are no complicated wiring diagrams to follow. Pliers, screwdriver and a small soldering iron are the only tools needed.

Cost of the Meissner Student Kit is low, and this set can be used as basic equipment for advanced radio courses in which students convert the 1-tube set into a 2 or 3-tube set with low-priced "add on" kits. For more advanced students, the 6-tube 2-band set, also accepted by the Navy and Signal Corps, has been found most practical.

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The Meissner "How To Build" Instruction Manual is the ideal supplementary textbook and laboratory manual. It is full of practical information that the beginner needs and it will be indispensable as a reference book for all radio students.

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NEWS

What's Doing in the Field of INDUSTRIAL EDUCATION

Michigan Convention

THE Michigan Industrial Education Society will hold its annual convention on April 11, 12 and 13 at Grand Rapids, with headquarters at the Pantlind Hotel and exhibits in Convention Hall. A new feature of the convention will be the awarding of prizes for the best displays of teaching aids and instructional materials.

Vocational Committee

A "Southern California Vocational Association Advisory Committee" has been formed to promote vocational education in the southern section of the state. The committee has 30 members with six representatives from five associations in the fields of agriculture, business, home economics, guidance, and industrial education. The committee organized an all-day meeting for teachers on November 17 at Fremont High School, Los Angeles, with several hundred in attendance. Gordon Funk, President of the Southern Region, Industrial Education Association, is chairman of the committee.

Welding Library

THE objective of the A. F. Davis Welding Library at Ohio State University, Columbus, is to assemble in one place all of the important literature on welding. The assistance of welding instructors is solicited in extending the collection. Copies of patent numbers, literature, and manuscripts pertaining to welding are desired. The library is named for its donor, A. F. Davis, vice-president and secretary of the Lincoln Electric Co., Cleveland, Ohio.

Money Voted

THE money voted at a recent bond issue is now available for the construction of a new technical institute at Long Beach, Calif., which will be built as soon as construction details are worked out. The institute will be five stories in height with a 350-foot frontage. It will become an integral part of the Long Beach City College.

Canada Trains

THE report on Canadian Vocational Training for 1944-45, recently released by Humphrey Mitchell, Minister of Labor, indicates that an extensive program was carried on by our neighbor to the North. The program is divided into three divisions: youth training, war-emergency training, and apprentice training. Dominion-provincial youth training included, besides assistance to university students, projects ranging over a variety of subjects such as homecraft and handicraft, farm mechanics, industrial and commercial training, agriculture, business, clothes remodelling, and others, depending on the needs and preferences of the provinces concerned. The aim of the apprentice program is full- and part-time training in schools of a technical and practical nature for apprentices registered under the apprenticeship acts in the various provinces. Much organizational machinery was set up because of an anticipated increase in apprenticeships during the coming year. War-emergency training prepared individuals for both industrial and military occupations. It comprised RCAF classes, Army tradesmen, Navy tradesmen, training for industry, training in industry, supervisory training, and rehabilitation training. Training for military occupations slacked off as the year closed as did industrial training. Increasing interest was shown in the supervisory training program, however.

See Us in Buffalo

WHEN attending the American Vocational Association Convention in Buffalo February 6-9 be sure to stop at the SCHOOL SHOP booth for a chat. Executive Secretary L. H. Dennis states that the program will be unusually excellent this year with peacetime training problems holding the center of interest.

- Heavy bronze bearings
- 1" Collet capacity
- 11¼-inch swing
- Double-walled apron
- Large hardened and ground spindle
- Extreme accuracy
- Convenient controls
- Underneath V-belt motor drive
- All Steel Bench

. . . compare a SHELDON S-56 Precision lathe with all other 10" lathes in the moderate priced field, and you'll find more accuracy, more capacity, more convenience, more design, more quality . . . *from any angle just more lathe.*

The SHELDON S-56 lathe has a bed length of 56", with rigid T-girted bed with 2 V-ways and 2 Flat ways which are ground and hand scraped to .0005" of both lateral and parallel alignment. Lead screws are cut on the finest Pratt & Whitney "super precision" lead screw machine. The S-56 lathe with 56" bed is mounted on a rigid 5 drawer steel bench (S-44 with 44" bed on a 4 drawer steel bench) which houses an efficient 4-speed (8 spindle speed) underneath motor drive. Each come with full quick change gears, power longitudinal and cross feeds and standard big lathe features.

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4260 N. Knox Avenue Chicago 41, U.S.A.
Builders of Good Lathes since 1919.

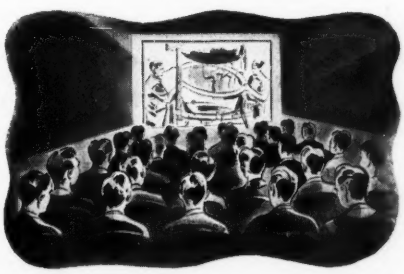
Plexiglas IS BACK FROM WAR—

Ready to help Shop Teachers

PLEXIGLAS, the modern transparent plastic, used during the war on every type of Army and Navy plane, is now available for school shops. Your students will be interested in the many unusual design possibilities PLEXIGLAS offers, and will gain a working knowledge of a material that may well be prominent in their futures.

In most cases the addition of an oven and motor buff to present shop equipment is all that is required for working with PLEXIGLAS.

THE PLEXIGLAS MOVIE



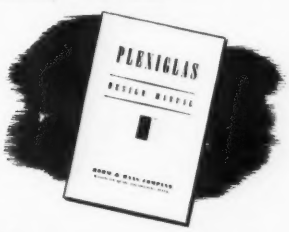
You may borrow an interesting 16mm sound film about PLEXIGLAS, showing methods of PLEXIGLAS fabrication, maintenance, and repair. It is a film all shop instructors and students should see.

To arrange a showing, just let us know approximately when you will want it and for how long.

PLEXIGLAS FABRICATING MANUAL

To give aid in working with PLEXIGLAS, the PLEXIGLAS Fabricating Manual is available to shop instructors. Generously illustrated, it describes the principal properties of PLEXIGLAS and explains how this transparent plastic may be sawed, drilled, carved, sanded, buffed, and otherwise worked to the best advantage.

Write our Plastics Department, School Division, for helpful information on teaching the use of PLEXIGLAS in your school.



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Manufacturers of Chemicals including Plastics . . . Synthetic Insecticides . . . Fungicides . . . Enzymes . . . Chemicals for the Leather, Textile, Enamelware, Rubber and other Industries

A Can Puncturer

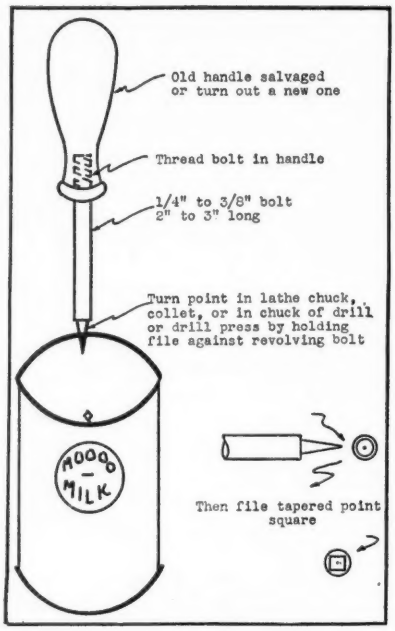
BY *Stanley J. Drazek*

An excellent project for beginning students. The author teaches in the Hannibal, N. Y., High School but is now in the Armed Forces.

TESTED INSTRUCTIONAL PROJECT

HERE is an introductory project for a beginning student in industrial arts. It will stimulate pupil interest for it combines metal turning and wood turning. The completed can puncturer will serve as a useful tool for the pupil's mother. The metal can be obtained from a ¼" or ⅜" bolt. Even a woodworking shop teacher can have students make this tool since the point can be turned in the drill press by holding a file against the revolving piece. Hardening and tempering may be included if the shop has facilities for these processes.

The finished project can be tested to see how well it punctures holes. Only a slight pressure should be necessary. The shoulder prevents the tool from being pressed too deeply, as so often happens when an ice pick is used for this purpose. The square-shaped tip flares the metal into the can neatly, but leaves each corner free of a flare, permitting the entire contents to be drained. The pupil's mother will like this feature, as well as the neat, uniform holes that will result. Children will be in no danger of cutting themselves on cans with rough, burred edges.


Old handle salvaged or turn out a new one
Thread bolt in handle
1/4" to 3/8" bolt 2" to 3" long
Turn point in lathe chuck, collet, or in chuck of drill or drill press by holding file against revolving bolt
MOOOO — MILK
Then file tapered point square

Attachment . . . *from page 10*

moved toward nose of *rivet set* (5).

Determine radius of cut by distance point is *beyond pivot center mark* (8). *For convex cut* point of *bit* (3) should be retarded from nose of rivet set or other object *behind pivot center mark* (8) sufficiently to give the desired profile arc to the nose of tool being cut.

Screw *operating handle* (1) into *tool post* (2). *At "on center" position* this arm will be at a 45° angle to the center line of the lathe. To make rivet set cut on nose of (5), move the handle away from the tail stock through an arc of 45°. Repeat this cycle as tail stock is advanced by its screw until desired diameter is cut.

Check the cut by using first the half head end of *gage* (9) to determine contour alignment and then the whole rivet head to verify the size and shape.

The operating handle can move through a 90° arc to accomplish other cutting jobs.

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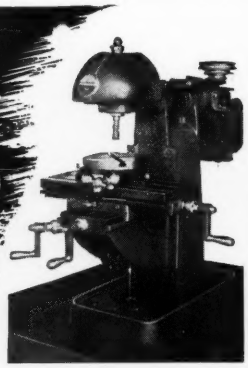
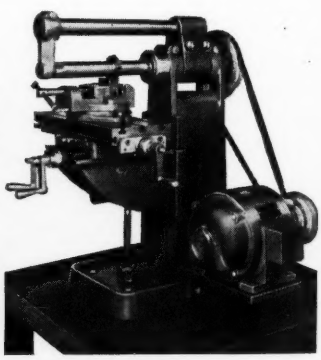

Vertical Mill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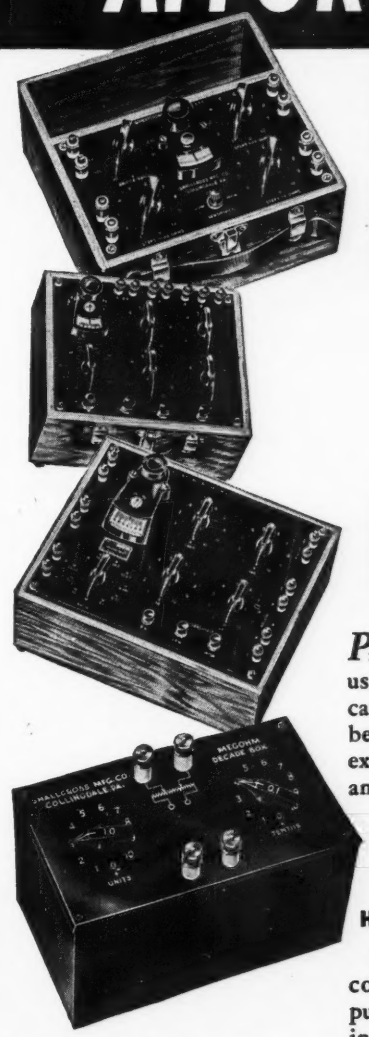

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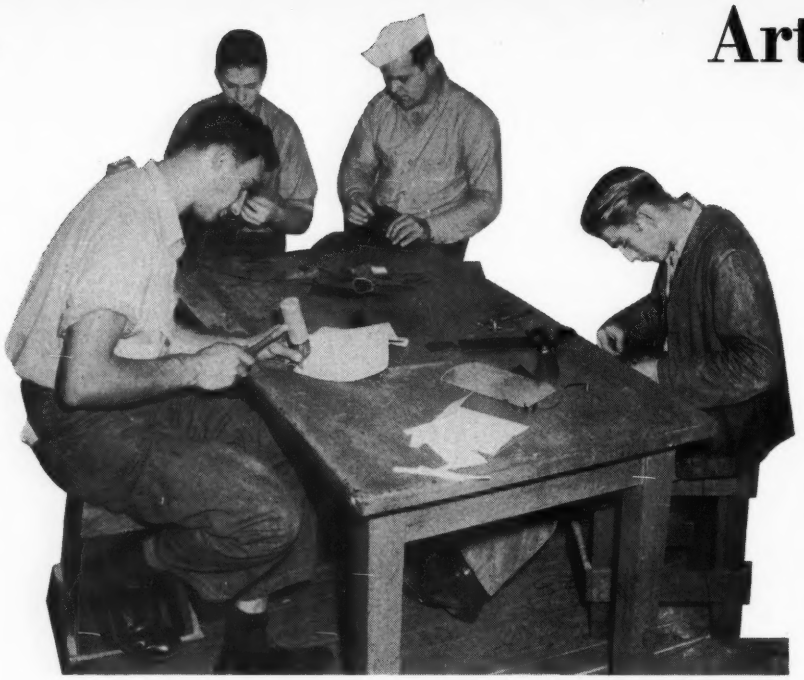
Arts and Crafts in the Navy

BY *Lt. C. E. Frankson*

The author, formerly Assistant Professor of Industrial Arts at Ball State Teachers College, Muncie, Indiana, brought his civilian training into play when assigned the task of carrying on a recreational program for enlisted men soon to be demobilized.



Official U.S. Navy Photograph

AFTER the cessation of hostilities, the Navy, as well as other branches of the service, was confronted with problems of a new nature. Many ships and stations were decommissioned or were to be decommissioned. Naval activities were to be curtailed and millions of young men were once again to return to civilian life. The Navy Department on August 16 announced a plan for the release of these men. Naturally, not all could be released at one time. For those still in the service, the major problem now became one of maintaining the traditional high standard of morale.

To meet these changing conditions, Carrier Aircraft Service Unit Twenty-Three, as well as other naval units, developed a recreational program based on the assumption that a busy man is a happy man.

One phase of this program was the development of an arts and crafts laboratory. A large classroom, formerly used in the training of fighter pilots, was selected because of its central location, good ventilation, and adequate lighting. A master plan was drawn up, mapping out the various work areas.

A small detail of men was given the assignment of building the work benches, lockers for storage, and a tool-room.

As the Navy curtailed its maintenance and training programs, power machines and hand tools became available for the new crafts laboratory. The first power tools installed were a band saw which could be used in the cutting of wood or metal, a drill press, a wood-turning lathe, and a metal-cutting lathe. The acquiring of hand tools was not a problem as all Navy shops contributed readily to the program.

The acquisition of mediums to be used in the laboratory was considered the greatest problem. It was discovered, after considerable search, that many materials formerly used by craftsmen had practically disappeared from the open market.

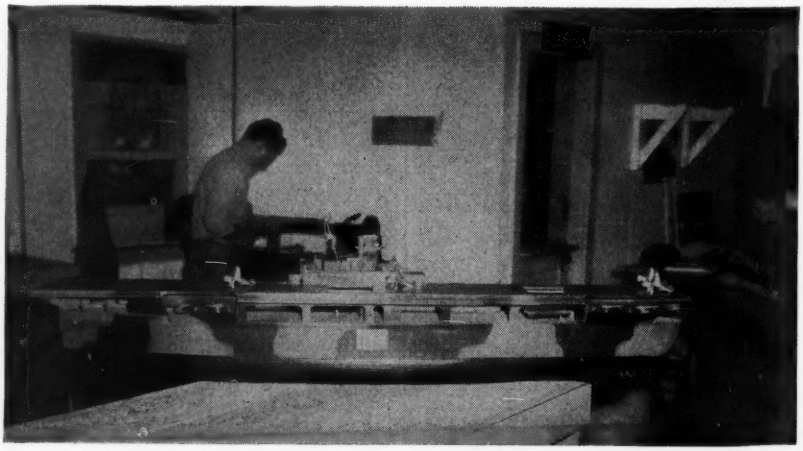
Our attention then was turned to the materials which might be found in the salvage yard located on the base. Salvaged aircraft furnished us with copper, duraluminum, steel, Plexiglas, brass, and fabric. Lumber was acquired from discarded benches, lockers, shelves, tables, and packing boxes. The scrap lumber from the carpenter shop was also used. Some hardwoods not available on the base were bought on the open market. From the ordnance shop we secured .30- and .50-caliber expended brass cartridges. The parachute loft gave us scrap canvas and rope. The paint shop donated a variety of paints, lacquers, and varnishes for which there was no other use.

Clay for modeling, photo-tinting colors, show-card paints, leather, airplane models, and fly-tying equipment were acquired in nearby cities.

The next step was the selection of personnel for instructors. The arts and crafts laboratory was designed to accommodate approximately one hundred prospective craftsmen. A staff of ten instructors was considered adequate. Applicants were interviewed as to special abilities, education, and teaching experience. All of the ten men selected had special qualifications in particular fields, had at least a high-school educa-

(Continued on page 20)

Official U.S. Navy Photograph



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(Continued from page 18)

tion, and had had some Navy experience in teaching.

An advertising campaign was in progress while the shop was being organized. A few of the talented enlisted men were recruited to design posters announcing the date of the opening, the place, daily hours, materials, and supplies available. These posters were placed in the barracks, hangars, ship's service, and other places where the men gathered. The Navy's loudspeaker system was used in passing the word to the men at quarters.

The laboratory opened in early October. It was at first planned to operate it from 0800 to 1700 Monday through Friday. The response, however, was so great that the hours were extended from 0800 to 2100 daily, including Saturday and Sunday.

The type of men who reported to the laboratory were what one would call a cross section of America. The men ranged in ages from 17 to 45. Their education varied from elementary school through college. The backgrounds of these men were as varied as their ages and education. Many had been farmers; one individual had spent his youth helping his father in commercial fishing; another had been a professional boxer; and another had worked in an advertising firm. Practically every walk of life was represented.

Many of the men reported with definite ideas as to the project they wished to make. As this base is predominantly an aviation base, many of them were naturally interested in making airplane models, some of which contained engines. The most popular models were the Hellcat, Zero, Thunderbolt, and Lightning.

Many men were interested in working with materials which were new to them. Leather was one of these. Articles such as belts, billfolds, pocketbooks, and coin purses proved very popular.

In the metalworking field was found the greatest amount of variation and ingenuity ran rampant. Cigarette lighters were made from the metal taken from airplane propellers, picture frames were made from copper tubing and aluminum found in salvaged planes. Other salvaged materials from planes went into metal bracings for children's wagons, trailer hitches, trimmings for jewel boxes, and flower-pot holders.

Wood proved to be one of the most popular mediums in the laboratory. Many of the men had had previous experience in this field. As the Christmas season was approaching, many devoted their time and effort to the making of toys and gifts. Rocking horses, fire engines, trains, doll furniture, and games predominated. Christmas gifts for the ladies were also in order. The range was from wooden buttons, pins, and buckles to jewel boxes, cigarette boxes, and carved statues.

Some of the men were not interested in the mechanical areas of the laboratory. For them we furnished two additional rooms adjoining the main laboratory. Materials were provided for work in oil painting, photo tinting, silk screening, block printing, and clay modeling.

The arts and crafts laboratory as an integral part of the Navy's demobilizing program has more than fulfilled its purpose of maintaining a state of high morale. It has given the men a chance to express themselves freely in the various mediums and at the same time has provided an opportunity for them to make useful articles for themselves and their families.

Every ship and station has a welfare fund which is derived from the profits of its ship's service store. It is to be used for the welfare and health of the men aboard. It was through this fund that the arts and crafts laboratory was made possible.

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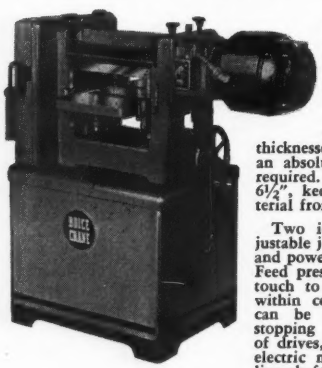

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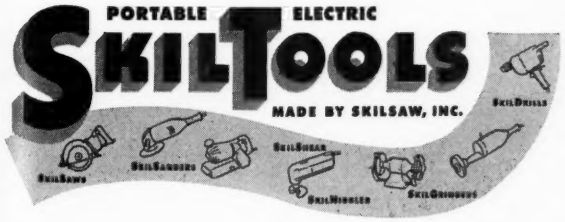

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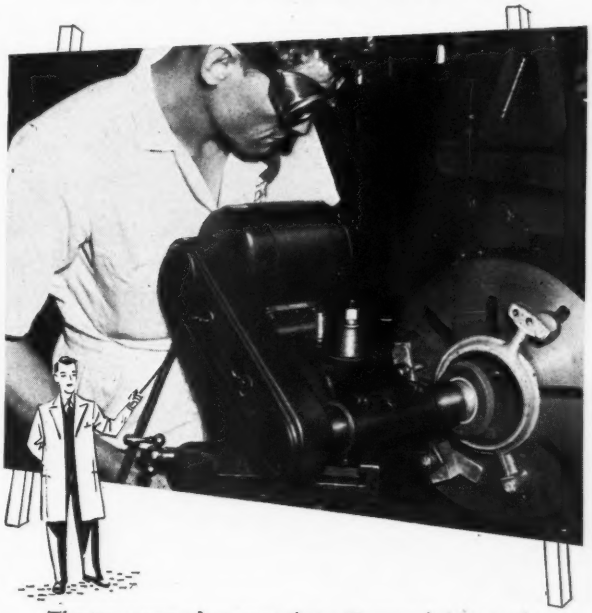

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A recent project in our shop involved construction of comparatively inexpensive toys for local retail merchants and was designed to raise funds for much needed shop equipment. The toys were constructed during class hours and the project extended over a period of three weeks. We earned well over one hundred dollars and used the money for purchasing shop equipment, but the important value in such a venture results from its contribution to the development of business experience, ingenuity, and resourcefulness among the students. It also offers an excellent opportunity to introduce related information dealing with industrial processes and business methods.

Practically all materials, comprising scrap pieces of plywood, mahogany, oak short ends, and screws swept up from the factory floor, were donated to the school by the Chris-Craft Co. The most popular toy was a small wagon filled with blocks. The wagon was 4″ high, 10″ wide, and 14″ in length. We dadoed the sides and ends for a ¼″ plywood bottom. The wheels were cut from ¾″ plywood and attached to cleats in the bottom of the box with 1½″ no. 10 r.h. screws. A screw-eye was added to the front of the box for pulling by a string. The blocks were cut from 2″ x 2″ oak. They were sanded, dipped in bright enamels, and hung from wires over the drip tanks while drying.—*Howard Ingersoll, Merritt, Michigan, High School.*

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Too often students in drafting have no opportunity for group action or the development of leadership or the assumption of responsibilities. This project helped to meet all of these educational needs.—*Arsenal Technical High School, Indianapolis, Ind.*

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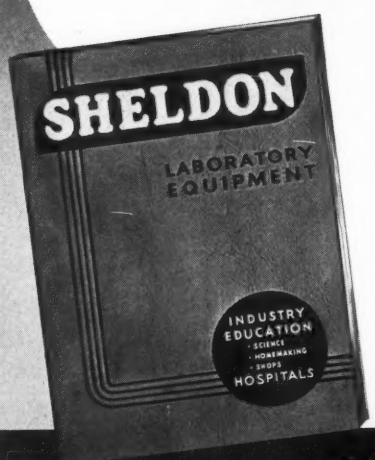

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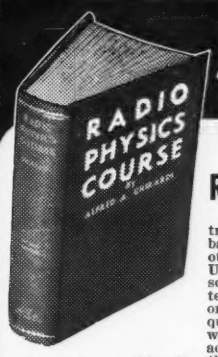

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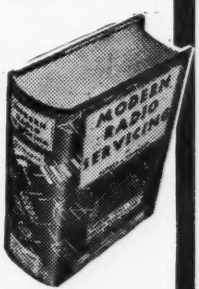

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2. MODEL CAR DESIGN COMPETITION — 316 awards, including two $4,000 and two $2,000 scholarships. In this, the student makes a solid model automobile embodying his own ideas of motorcar design.

Rules are simple and fair

In both competitions the following regulations will prevail. Boys 12 years old, or older, but not yet 16 by September 1, 1945, compete in the Junior Division. Boys 16 years old, or older, and not yet 20 on September 1, 1945, compete in the Senior Division. All boys within these age limits are eligible to Guild Membership. There are no dues or entrance fees of any kind. Each member shall receive, without charge, an official Guild Membership card and button, and a full set of Guild drawings and instructions. Both competitions close July 15, 1946, and are open to all boys within the age limits, including the sons of General Motors employes. In all cases where the son of a General Motors employe qualifies for an award, duplicate awards will be made.

FISHER BODY CRAFTSMAN'S GUILD
An educational foundation sponsored by
Fisher Body Division of General Motors
General Motors Bldg., Detroit 2, Michigan

Gentlemen: Please send me complete information, without charge, relative to

☐ Napoleonic Coach Competition
☐ Model Car Design Competition
☐ Color slide film for classroom use

Name_____
Address_____
City_____ Zone____ State____
Subject taught_____
Number of eligible boys in my classes____
Dept. 43

Strictly Personal
ABOUT YOUR FELLOW TEACHERS

WILLIAM J. MICHEELS has returned to his position at the University of Minnesota after serving as assistant director, division of transport personnel, Office of Defense Transportation, Washington, D. C. . . . . J. H. FURBAY of the U. S. Office of Education has been named head of the Air-Age Education Service Center of Transcontinental and Western Air, Inc., which has been organized to aid schools in organizing and conducting programs and courses for students. . . . ORVILLE HAYFORD, teacher of industrial arts in the Washington Irving High School, Tarrytown, N. Y., died recently at the age of 52. He was one of the leaders in the Westchester Industrial Arts and Vocational Education Association. . . . J. M. TUBB has been named state executive officer for vocational education in Mississippi and state superintendent of public instruction, succeeding J. S. VANDIVER. . . . Lt. Col. RALPH WENRICH, formerly a member of the staff of the Pennsylvania State Department of Vocational Education, has been named lecturer in vocational education at the University of Michigan. . . . THOMAS O. MARSHALL of Colorado State College of Agriculture and Mechanic Arts, Fort Collins, has been named to the faculty of American University, Washington, D. C.

IN THE Morning Mail...

Brief comments about SCHOOL SHOP and the field it serves are invited. Address the Editor, SCHOOL SHOP, Ann Arbor, Michigan.

Gentlemen:

May I call your attention to the article "Wood-Lathe Accessory Arrangement" by Conrad Johnson in the October issue of SCHOOL SHOP? The tool rack illustrated on page 14 introduces a serious question of safety which we should like to point out. You will note that the sharp edges of two tools extend above the back-rest. This certainly introduces a hazard which should not be permitted in any school shop.

WAYNE P. HUGHES,
School and College Division,
National Safety Council, Chicago.

[EDITOR'S NOTE: Reader Hughes is right. The obvious solution is to make the back-rest sufficiently high so that the longest tool will not protrude above it.]

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Famous JOHNSON Furnaces Again Available to Schools

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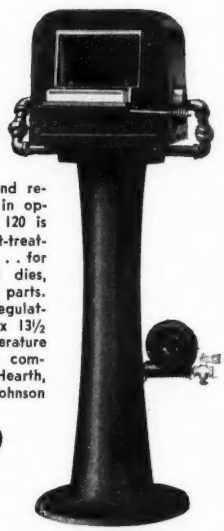

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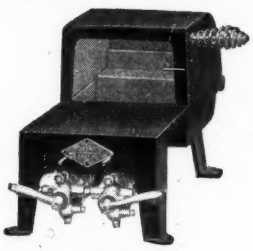

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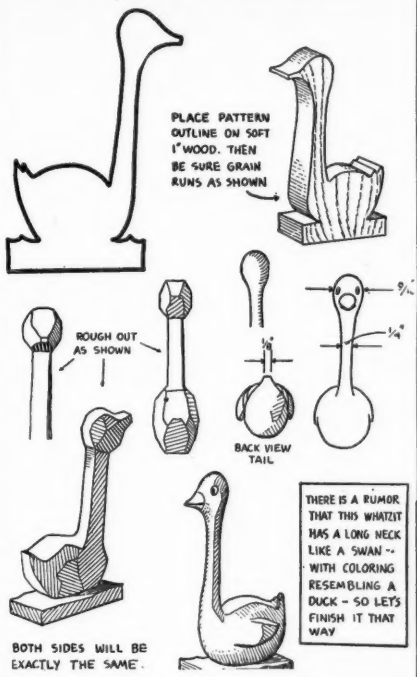
How to make a WHAT-ZIT


PLACE PATTERN OUTLINE ON SOFT 1" WOOD. THEN BE SURE GRAIN RUNS AS SHOWN
ROUGH OUT AS SHOWN
BACK VIEW TAIL
BOTH SIDES WILL BE EXACTLY THE SAME
THERE IS A RUMOR THAT THIS WHATZIT HAS A LONG NECK LIKE A SWAN -- WITH COLORING RESEMBLING A DUCK - SO LET'S FINISH IT THAT WAY

A WHAT-ZIT? WHAT-ZAT?

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**Reg. U. S. Pat. Off.*

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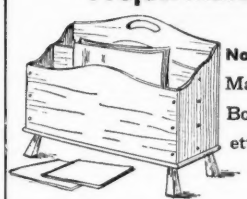

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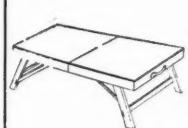

No. 17 – *Folding Tables and Trays:* Picnic Case and Table – Folding Snack Table – Combination Tray – Collapsible Bed Tray – Match Box Holder.

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Instructional RESOURCES

Creative Crafts in Wood. Dank. Peoria, Illinois: The Manual Arts Press, 1945. Pp. 200. $3.00.

This textbook covers three closely related types of work in wood, but the basic plan is concerned with coping-saw work. The first section of the book, therefore, is given to designing, making, and finishing coping-saw projects; and the last two sections further develop the possibilities for decorating this kind of simple woodwork with special technics, wood stippling, and wood chipping. Any of the designs in the three sections can be traced and reproduced in wood just as they are presented; or they may be reduced or enlarged by employing the conventional plan explained and illustrated by the author.

A number of complete design suggestions in large, detailed drawings run throughout the book. The care and use of tools is treated—each process is discussed and analyzed, in close connection with the illustrations showing the actual tools and tool uses.

Michael C. Dank is a teacher of handicrafts in the New York City school system and the Universal School of Handicrafts, New York.

Permanent Learning. Lancelot. New York: John Wiley & Sons, Inc.; 1944. Pp. x + 221. $2.25.

Permanent Learning "seeks to make teaching a job whose challenge the most capable young people will find hard to resist."

The book goes far beyond theoretical discussion. It suggests ways and means of carrying theory over into classroom practice. Educational aims are listed and practical ways of achieving those aims are suggested and explained. The final chapter brings together the general technics proved useful to the teacher. Each chapter is followed by a series of thought-provoking discussion problems and questions as well as an extensive bibliography.

W. H. Lancelot is professor of vocational education, Iowa State College.

Electrical Drafting. Van Gieson. New York: McGraw-Hill Book Co., 1945. Pp. 140. $1.50.

A practical text dealing with drafting technic as applied to electrical circuits and wiring plans. In a series of drawing plates and explanatory discussions, the book shows how to develop detailed wiring plans from the schematic circuit diagram; how to correlate the equipment-location plan; how to check the design and execution of finished drawings. Many helpful pointers on drafting principles and procedures are given to offer practical guidance and useful reference material.

Special attention is given to recent advances in electrical drafting. Modern methods and symbols are adhered to throughout the book. An important chapter is included on checking finished drawings by analysis of the circuit design and use of colored lines to insure eliminating errors in the development of the wiring plan.

D. Walter Van Gieson is an assistant electrical engineer, Board of Transportation, City of New York.

Optical Instruments. Earl B. Brown. Brooklyn: Chemical Publishing Company, Inc., 1945. Pp. xii + 567. $10.00.

This volume is written primarily for the individual who comes in contact with optical instruments as a student, operator, teacher, engineer, or repairman. It is not intended for the optical or mechanical engineer, nor as a manual of instruction for the use and care of any particular instrument.

Considerable emphasis has been placed on the telescope, as the majority of optical instruments are telescopic in principle. There is also an extensive chapter on the spectroscope and on the range finder. Much material has been included on the care and maintenance of optical instruments. Methods of collimation, adjustments for parallax, tilt, double vision, etc., are covered in considerable detail, as well as repair and adjustment of mechanical instrument parts.

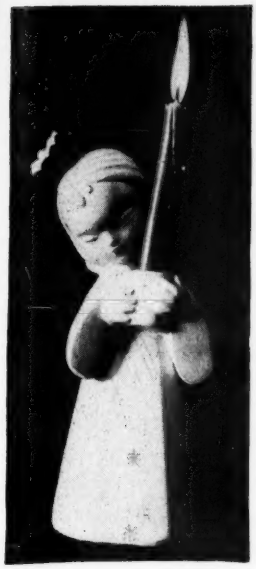
Lessons in Arc Welding. Revised Second Edition. Cleveland: Lincoln Electric Co., 1945. Pp vi + 176. $0.50 in U. S., $0.75 elsewhere.

This is a revised, new printing of the second edition of a popular text which includes 61 lessons in arc welding, forming the basis of instruction in the Lincoln Arc Welding School.

The book includes over 200 illustrations to supplement the text, and 571 examination questions and answers on the subject matter.

The new printing contains much recent material on applying the latest types of electrodes and welding technics developed in the war years.

Assignment: Tomorrow. 16mm sound; black and white. The National Education Association is now distributing to the state education associations a new documentary film on the place and importance of the teacher in American life. This film is 26 minutes long and is followed by a film of 7 minutes which describes the relationship of the local, state, and national professional organizations. Booking requests should be made from your state education association.



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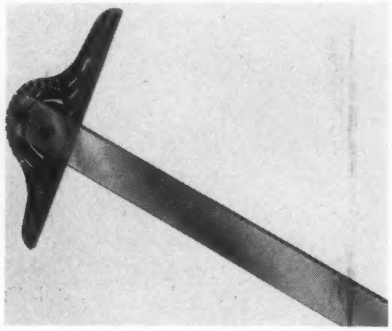
News from INDUSTRY

Adjustable Plastic T-Square

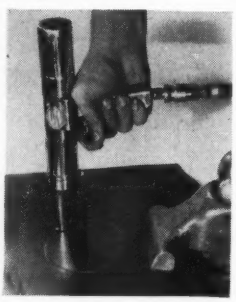


A new, all-plastic, adjustable T-square has recently been placed on the market by the C-Thru Ruler Company.

The arm of the T-square allows clear visibility over the entire surface and is fastened to the head in such a manner as to allow it to pivot to any angle. The arm is also equipped with brass lugs to permit ink ruling.

For further details and price write C-Thru Ruler Company, 385 Capitol Avenue, Hartford, Connecticut; *or check no. 39 on the coupon.*

Pneumatic Air-Speed Saw



A new air-speed saw and filing tool driven by compressed air is now ready for national distribution by the Air-Speed Tool Company.

The new tool is designed to speed up and simplify most sawing and filing operations. An adjustable barrel readily permits circular sawing in metals or woods, as well as difficult "dead-end" keyhole or scroll work. For complete details write Air-Speed Tool Company, 1028 West Slauson Avenue, Los Angeles 44, California; *or check no. 40 on the coupon.*

New "Three-Way" Bench Furnace

Designed to fulfill the requirements for a wide variety of applications, a new "three-way" bench-type universal laboratory furnace is now available.

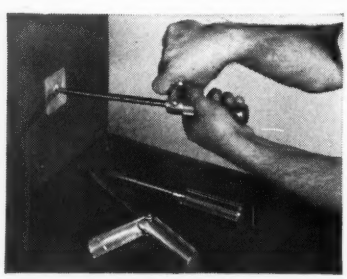
The furnace combines three different types of furnaces in one casing. It may be used as a direct-fired oven unit at temperatures from 300 to 2400° Fahr. For direct heating a muffle can be placed on the hearth. If an atmosphere is desired, a diamond block can be used in the muffle.

For complete details write Surface Combustion Corporation, Toledo 1, Ohio; *or check no. 41 on the coupon.*

New Container

A handy, new container for a wide range of shop uses has been developed by the Kindt-Collins Company. Made of heavy aluminum, the containers are built to stand plenty of abuse in daily shop service. A feature of the can is an inside crossbar support which can easily be removed for cleaning. For further details and prices write Kindt-Collins Company, 12651 Elmwood Ave., Cleveland 11, Ohio; *or check no. 42 on the coupon.*

"Tuffy"



A handy new tool, "Tuffy," has just been announced by the Swallow Airplane Company. "Tuffy" is a triple-purpose screw driver with a "power-arm" arrangement that gives extra power to unlock screws an ordinary screw driver cannot budge. With the power arm folded back into the handle, it becomes a standard screw driver.

For full details and price write Swallow Airplane Company, Wichita, Kansas; or *check no. 43 on the coupon.*

$75,000 Student Competitions

A full-color slide film and accompanying booklet describing in complete detail the Fisher Body Craftsman's Guild two student competitions are available to teachers free of charge. The booklet enables teachers to make running commentaries on the film and to answer any questions that may arise.

The competitions are open to all boys between the ages of 12 to 19 inclusive. See page 24. To borrow the film, write Fisher Body Division of General Motors, General Motors Building, Detroit 2, Michigan; *or check no. 44 on the coupon.*

"Universal" Tool Blank

The Kennametal "Universal" tool blank shown above, Style S-000, is rectangular in shape, with a 12° clearance angle formed on one long edge. It can be used to make different type tools by setting it into open-end recesses, as illustrated. Available in all recognized standard sizes, having thicknesses of 3/16" or more. Catalog sheet 23-A, giving complete information is available from Kennamental, Inc., Latrobe, Pa.; *or check no. 45 on the coupon.*

New Literature

Friction Sawing. The new technic for cutting materials known as "friction sawing," recently developed through the innovation of high-speed sawing machines, is described in detail in a new 24-page booklet released by the Machine Tool Division of the DoALL Company. Of particular interest is the "job selector" chart included, which contains a ready reference for selecting the proper sawing factors in cutting SAE steel, armor plate, stainless steel, illium, cast steel, and cast iron. For a free copy write the DoALL Company (Machine Tool Division) 1301 Washington Avenue South, Minneapolis 4, Minnesota; *or check no. 46 on the coupon.*

Portable A-C Test Sets. A new, 24-page bulletin, containing data and descriptive information on the complete line of portable a-c test sets from 2000 to 150,000 volts, is available from the General Electric Company. Write General Electric Company, Schenectady 5, New York, requesting bulletin CEA-4477; *or check no. 47 on the coupon.*

Canady Sound Appliances. The Dayton Acme Company of Cincinnati, Ohio, has succeeded the Canady Sound Appliance in the manufacture and distribution of sound recording equipment and accessories. For a free copy of a new catalog of available equipment embodying many new features write Dayton Acme Co., 930 York St., Cincinnati 14, Ohio; *or check no. 48 on the coupon.*

Each item listed above is numbered. Check the numbers of the items you want, and mail the coupon, properly filled in, to . . .

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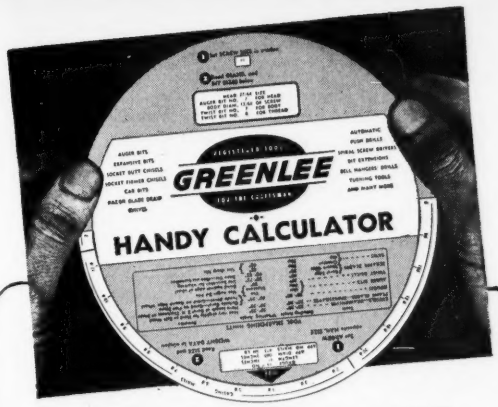

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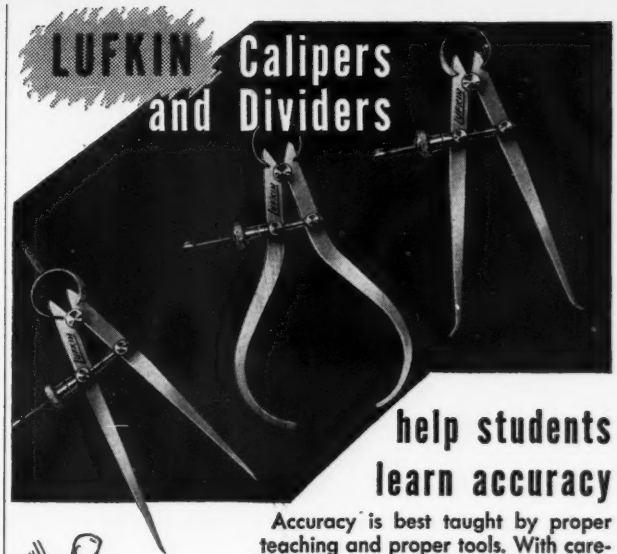

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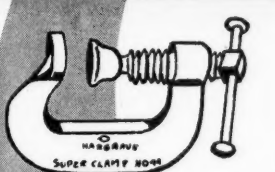

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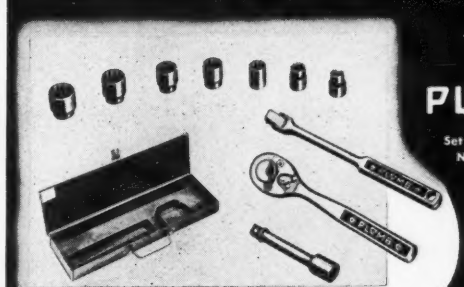

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From Washington *from page 32*

Unwilling to attend classes together with Negroes, Gary (Ind.), high school pupils went on strike. School children in Boston, Brooklyn, Chicago, and Los Angeles have ganged up on Negroes, or Catholics, or Mexicans; have desecrated synagogues; or have stoned "foreigners'" stores and homes. These are danger signs, to be matched by examples of tolerance and interracial understanding. In one Ohio city the pupils elected a student council having as its officers a Negro, an Irish-American, a Japanese-American, and one of the Jewish faith. In Massachusetts, the Springfield Plan goes marching forward, a shining example to other cities sincerely interested in developing tolerance.

Nevertheless, as Dr. DuShane surveys the U. S. scene, he finds that today "racial, religious, and class intolerance in this country have shown themselves to an increasing extent in recent public actions and public utterances."

What can be done to check this trend? Says the NEA: "In every school, programs should be worked out to develop sympathetic understanding of the achievements, viewpoints, difficulties, and adjustments of the various racial, religious, and occupational groups that make up our society."

Here and there teachers are whacking at the roots of prejudice. In Kirksville, Mo., teachers have led their classes of white pupils to explore the lives of the Negroes in their community. . . . In schools throughout the Southwest, children are studying Spanish with a new avidity, as part of the effort to understand Latin America for what it really is. The New York City Board of Education has introduced a course of study under the title: "We the People—A Nation of Immigrant Stock". . . .

» And while they talked on tolerance and goodwill, education's spokesmen did not in the least deprecate the importance of industrial education. In fact, Representative Sam Rayburn, in describing what the schools must do "to help save civilization," names high in his list the school's responsibility to "develop efficiency in vocations." He lists also the need for developing civic-mindedness in pupils. And most urgently, Mr. Rayburn would have the schools—all schools—develop appreciation of our place in international affairs. "If we do not put forth every effort to bring about an ordered world and a permanent peace, we will have failed our day and generation."

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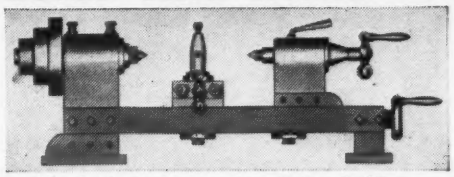

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FROM WASHINGTON

BY MICHAEL PACA

USUALLY this column's business is vocational and industrial education —but not this month. When your reporter made the rounds for news, the Washington leaders to whom he turned would rather not talk school shop. Perhaps, one suggested, the first month of the atomic era's first new year would be a good time to reflect on things other than the projects which concern shop teachers the year 'round.

What was perplexing to the Washington spokesmen for education was not the effects of atomic energy alone. They turned their conversations to stuff more potent than uranium: to the minds, the attitudes, the prejudices, "the nation's and the world's moral health."

When practical men talk in this vein it is easy to see that the clouds that rose over atom-struck Hiroshima are still hovering over Washington. Washington can still hear the voice of Britain's Prime Minister Attlee who came to town to talk about foreign affairs in the "terrible light" of atomic energy. Almost daily the military discloses plans for new and dreadful weapons.

But more disconcerting is the fact that the Capital is besieged by scared people —not the least of these are the scientists who themselves caused the fissure of the atom. You can see their faces in almost every Washington hotel, on Capitol Hill, at executive hearings. They are the young PhD's, physicists, chemists, mathematicians. They came to Washington to lobby; to tell the Congress that the force they helped release is more terrible than dreamed of—that wisdom, not technology nor defense devices, can control it. That is why these young alchemists are taking time out from their laboratories and their offices.

Like the scientist, should not teachers also take time out to consider this terrible weapon and plead for wisdom in controlling it? That is a question your reporter heard time and again.

•

» But there are other issues as explosive as atomic energy. And your reporter has been filled with facts on these, too, while searching for school shop news. Here are but two of them, as "appropriate for consideration by school shop teachers," said one educator, "as by any other teacher."

Can you help in world peace? In London, delegates of 44 nations framed a charter for a United Nations Educational, Scientific, and Cultural Organization. The Congress will probably ratify it promptly, since both chambers have previously passed the Mundt Resolution asking for such a global agency.

"War begins in the minds of men . . ." reads the proposed constitution. "It is in the minds of men that the defenses of peace must be constructed." Hence, your reporter was told, war can begin in the minds of pupils attending school or in the minds of jobless workers—the very types that Hitler represented when he roamed, hungry, the streets of Germany.

To help wipe out war, UNESCO will try to encourage the exchange of students, scholars, and artists among the United Nations; foster adult education; use the radio, motion picture, and the press for popular education and exchange of ideas; wipe out illiteracy everywhere in the world.

But, say Washington leaders, these devices can work only in a climate favorable to peace. Hence, we must stop the inevitability-of-war talk. The country must take some bold measure to give reality to the aims of UNESCO. Is that step to be compulsory military training, as some urge with all sincerity? Is it to be a program to exchange 5,000,000 students, teachers, and artists a year among all the United Nations? Shall we cleanse all our school texts of references to "lower races"; to the superiority of one system of government over another; to the myth of Caucasian supremacy?

"In all the peace programs of the past," says the National Commission for the Defense of Democracy through Education, "little attention and practically no support has been given to education in building and maintaining peace."

Many schemes for world peace have been tried in the classrooms, but they have reached few people. "It's a question of dosage," says Commissioner J. W. Studebaker. And the dosage of peace education should be applied not only in the social-studies classroom. It must be given to every pupil, in every facility of the school.

» *And what can be done for tolerance?* "Deep-seated prejudices," says Dr. Donald DuShane of the National Education Association, "frequently originate in early childhood and become fixed during adolescence."

(Continued on page 30)

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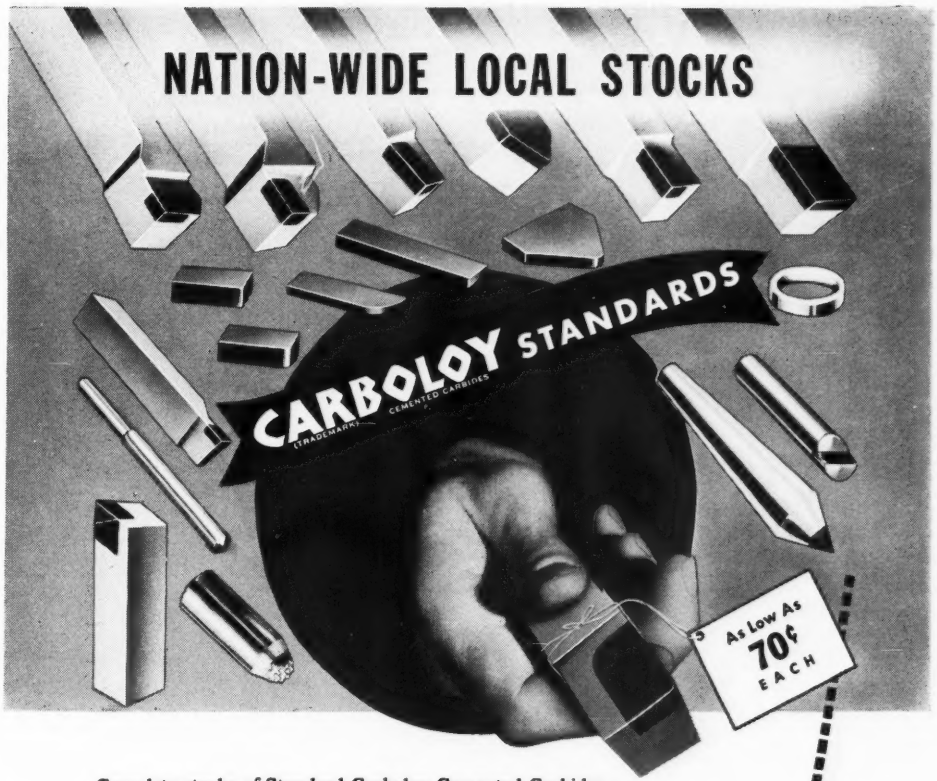

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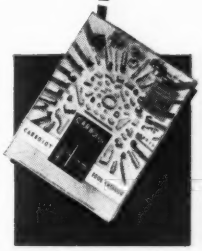

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